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09/868,719	09/17/2001	Rene Koksbang	2954/OJ505	3482

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EXAMINER

TSANG FOSTER, SUSY N

ART UNIT PAPER NUMBER

1745

DATE MAILED: 03/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/868,719

Applicant(s)

KOKSBANG ET AL.

Examiner

Susy N Tsang-Foster

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/18/2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6,8 and 10-20 is/are rejected.
- 7) ☒ Claim(s) 4,7,9 and 21-24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20010618.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement filed on 17 December 1999 has been considered by the Examiner.

Claim Objections

3. Claims 1-7, and 18 are objected to because of the following informalities:

In claim 1, the preamble "An electrochemical cell" should be "A non-aqueous electrochemical cell" in order to maintain consistency with the rest of the claims.

In claims 2, and 5, "tetralkylammonium" should be "tetraalkylammonium".

In claims 3, 4, 6, and 7, the Markush group is improperly written and should contain the phrase "selected from the group consisting of".

In claim 18, "hexafluoroposphate" should be "hexafluorophosphate".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 14 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 14 recites the limitation "the one or more of the polymeric layers of the packaging laminate of the cell" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

In claim 18, the limitation "wherein lithium hexafluorophosphate is present in a concentration in the range 0.2-0.45 M and lithium tetrafluoroborate is present in a concentration in the range 0.55-0.8 M" is indefinite because it is unclear if lithium hexafluorophosphate, lithium tetrafluoroborate are each present individually or in combination because claim 14 recites "lithium hexafluorophosphate, lithium tetrafluoroborate, or a mixture thereof".

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3, 5, 6, 8, 10, 12, 15, and 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by the IPDL JPO Machine Translation for JP 10-125327 A.

The IPDL JPO Machine Translation for JP 10-125327 A discloses a lithium ion battery which is a nonaqueous electrolyte secondary battery comprising carbon material as the negative

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electrode material and lithium metal oxides as the positive electrode active material (see paragraph 2 of machine translation). The reference also discloses adding salts of carbonic acid and salts of oxalic acid to the positive electrode (see paragraph 8 of machine translation). The amount of the carbonic acid salt is 0.2% to 15% by weight of the positive electrode active material and the oxalic salt is 0.1 to 15% by weight of the positive electrode active material (see claims 2 and 3, paragraph 27 of machine translation). The nonaqueous electrolyte contains 1 mol/l of LiPF_6 (see paragraph 10 of machine translation). When 0.2% by weight of oxalic acid salt and 0.1% by weight of the carbonic acid salt are used in the positive electrode, the ratio of oxalic acid salt to the sum of the oxalic acid salt and carbonic acid salt by weight is 66% and the amount of carbonic acid salt to the sum of the oxalic acid salt and carbonic acid salt by weight is 33%.

Since the electrochemical cell is a lithium ion battery, lithium ions are present in the electrolyte solution and lithium carbonate and lithium oxalate would also be present since carbonate anions and oxalate anions are present in the positive electrode.

8. Claims 1-3, 5, 6, 8, and 11-20 are rejected under 35 U.S.C. 102(b) as being anticipated by the IPDL JPO Machine Translation for JP 09-180758 A.

The IPDL JPO Machine translation discloses a lithium ion secondary battery comprising salts in one of a positive electrode, negative electrode, nonaqueous electrolyte, and inside the battery can where the salts are at least one salt selected from a salt of alkali metal, alkaline earth metal or carbonic acid, oxalic acid, nitric acid, an acetic acid, a phosphoric acid, and boric acid

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and the amount of salt is from 0.02% to 10% by weight (see claims 1-5 and paragraph 7 of machine translation of reference). The salts of the carbonic acid and oxalic acid can be salts of an alkali metal or alkaline earth metal (see paragraph 8 of machine translation).

The positive electrode material can be a spinel lithium manganese oxide (see paragraphs 12-14 of machine translation). The negative electrode can be graphite (see paragraph 19 of machine translation).

9. Claims 1-3, 5, 6, 8, and 15-19 are rejected under 35 U.S.C. 102(b) as being anticipated by the IPDL JPO Machine Translation for JP 10-284053 A.

The IPDL JPO Machine translation for the reference discloses a lithium ion nonaqueous electrolyte secondary battery comprising a negative electrode comprising graphite, a positive electrode, LiPF₆ at 1 mol/l concentration in the nonaqueous electrolyte where the nonaqueous electrolyte comprising a mixture of ethylene carbonate and diethyl carbonate (paragraphs 1, 7, 18, 19, 22, 38). The reference also discloses coating the negative electrode with at least one compound including Li₂CO₃ and Li₂C₂O₄ which is lithium carbonate and lithium oxalate (see abstract and paragraphs 19 and 22 of machine translation). The compounds coated on the negative electrode may dissolve (eluted) into the nonaqueous electrolyte (paragraph 18 of machine translation).

10. Claims 1-3, 5, 6, 8, and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Redey et al. (US 5,536,593).

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Redey et al. disclose an electrochemical cell having a bimodal positive electrode, a negative electrode of an alkali metal and a compatible electrolyte including an alkali metal salt molten at the cell operating temperature. The positive electrode has an electrochemically active layer of at least one transition metal chloride at least partially present as a charging product and additives of bromide and/or iodide and sulfur in the positive electrode or the electrolyte (see abstract).

With respect to claim 1, Redey et al. disclose an electrochemical cell comprising a molten salt electrolyte wherein the cell contains salts of oxalic and carbonic acids (see col. 5, line 57 to column 6, line 29, and column 6, line 62 to col. 7, line 17). With respect to claim 2, Redey disclose using alkali and alkaline earth metals as salts (col. 5, lines 8-29). With respect to claim 3, Redey et al. disclose using alkali and alkaline earth metals as salts (col. 5, lines 8-29). The disclosure of Redey et al. is directed to a molten salt electrolyte which is a nonaqueous electrolyte. With respect to claims 5 and 6, Redey et al. disclose using alkali and alkaline earth metals as salts. With respect to claim 8, Redey et al. disclose using alkali and alkaline earth metals as salts in a nonaqueous battery. With respect to claims 11-14, Redey et al. disclose oxalic and carbonic salt ranges that are within the claimed range (see col. 5, line 40 to col. 6, line 6).

Allowable Subject Matter

11. Claims 4, 7, 9, and 21-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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12. The following is a statement of reasons for the indication of allowable subject matter:

The cited prior art of record does not disclose, teach, or suggest any one of the following distinguishing features: a) that the salt of oxalic acid is selected from the group consisting of tetraethylammonium oxalate and tetrabutylammonium oxalate (applies to claim 4), b) that the salt of carbonic acid is selected from the group consisting of tetraethylammonium carbonate and tetrabutylammonium carbonate (applies to claim 7), c) that the nonaqueous electrochemical cell is a non-aqueous double layer capacitor comprising a mixture of tetraethylammonium oxalate and tetraethylammonium carbonate (applies to claim 9), and d) that the nonaqueous electrochemical cell is a nonaqueous double layer capacitor (applies to claims 21-24).

Conclusion

13. Any inquiry concerning this communication or earlier communications should be directed to examiner Susy Tsang-Foster, Ph.D. whose telephone number is (571) 272-1293. The examiner can normally be reached on Monday through Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at (571) 272-1292.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

st/ 

Susy Tsang-Foster
Primary Examiner
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